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Zich

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[54] **ADJUSTABLE ADAPTER BRACKET**

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[52] **U.S. Cl.** **248/225.2**; 248/222.1

[58] **Field of Search** 248/225.2, 220.2, 220.3, 248/220.4, 221.2, 222.1, 224.4

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[57] **ABSTRACT**

An adjustable adapter bracket is provided for use with an apertured support member. The bracket provides support at a selected elevation on the support member for shelving, display components, and the like. The adapter bracket includes a body that defines a load bearing region on which a portion of the shelf or display component rests. A hook element is carried by the body and is movable relative to the body to project beyond the body for entering into one of the apertures and engaging the support member. A nut is provided for cooperating with the body and hook element for adjusting the orientation and amount of projection of the hook element relative to the body.

4 Claims, 1 Drawing Sheet

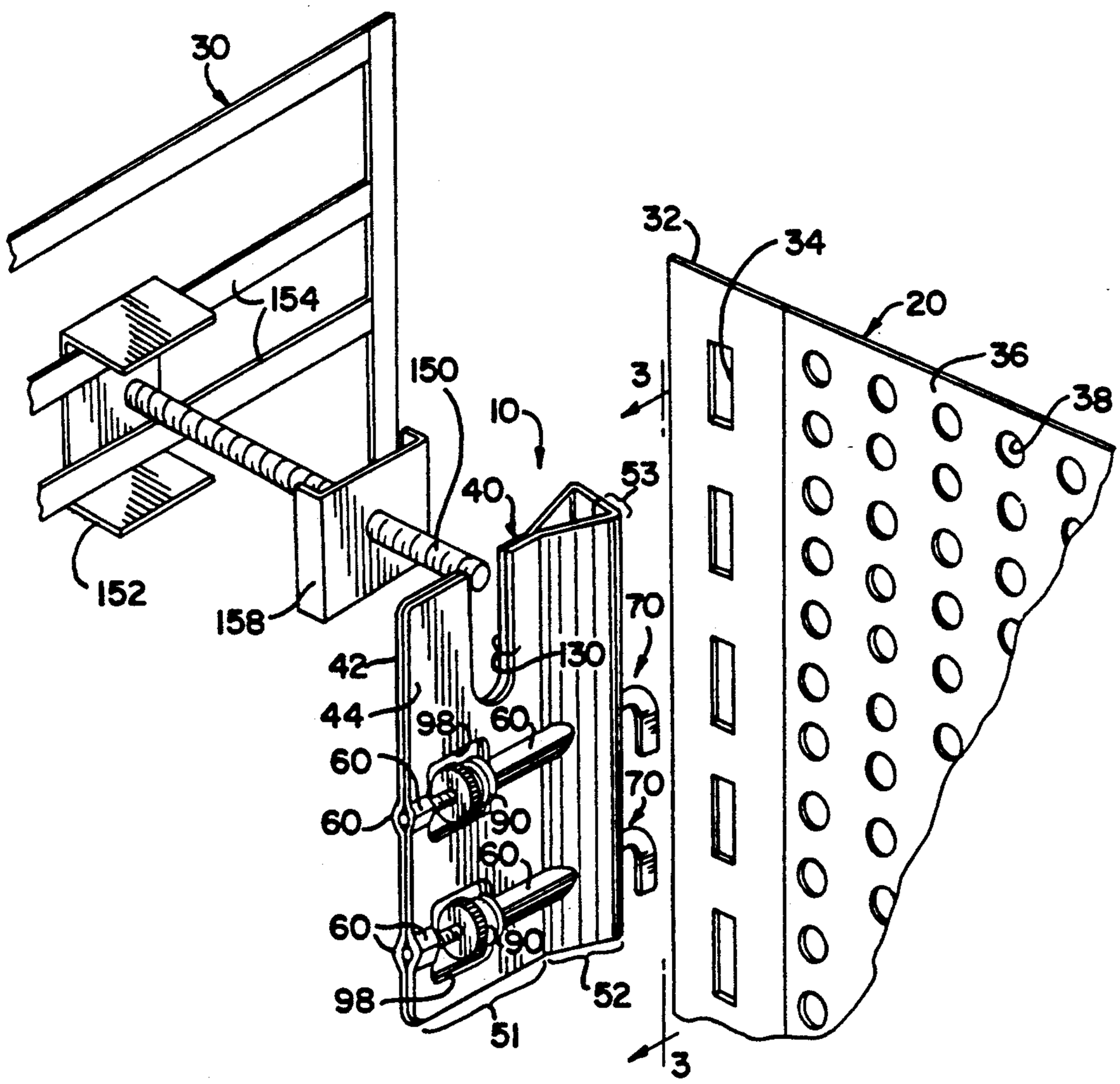


FIG. 1

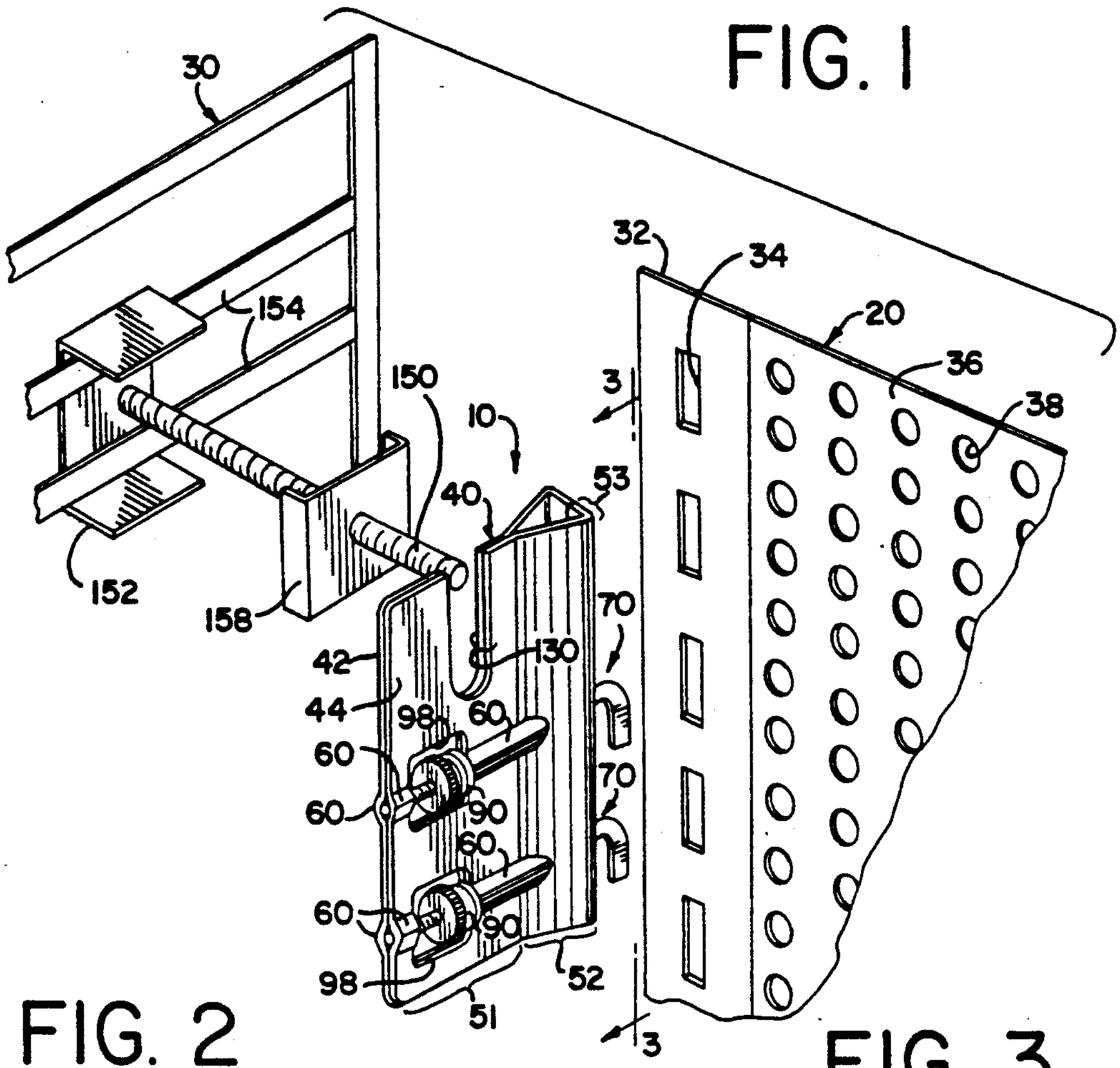
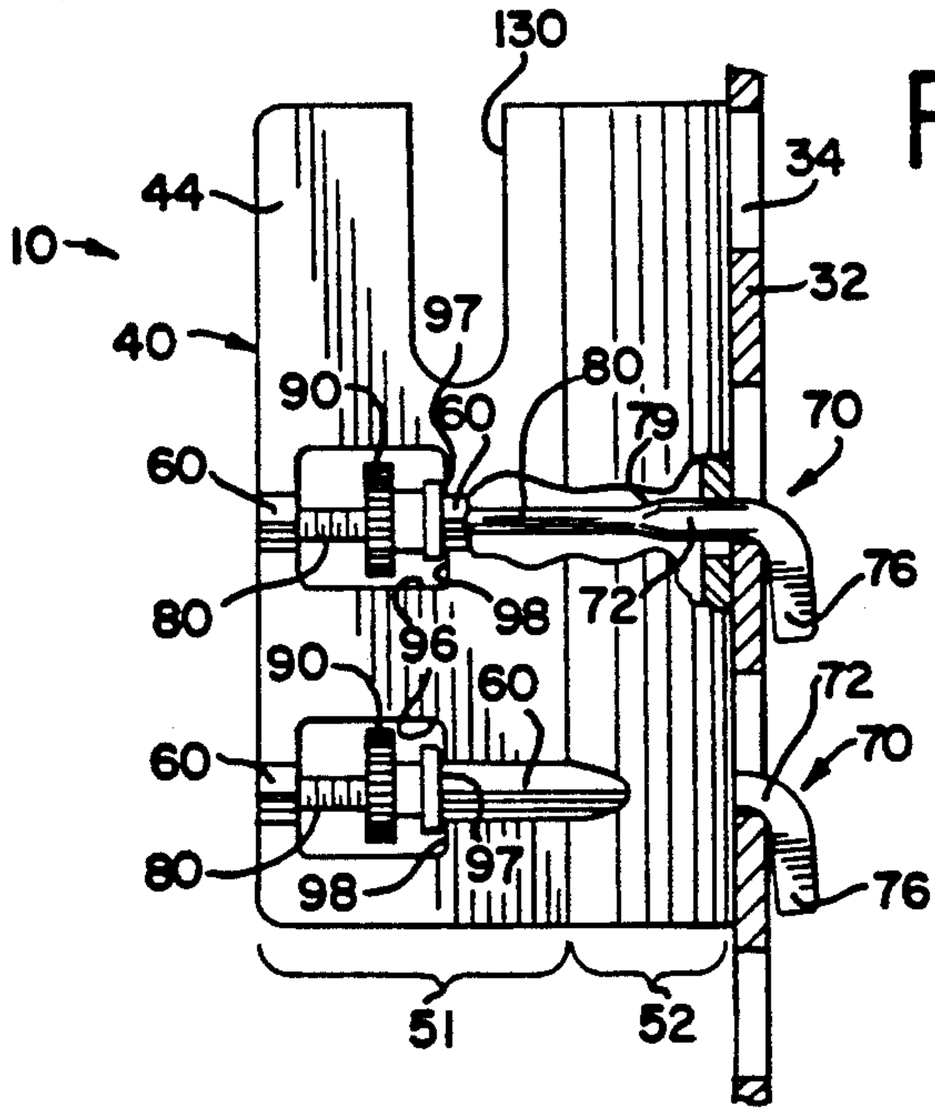
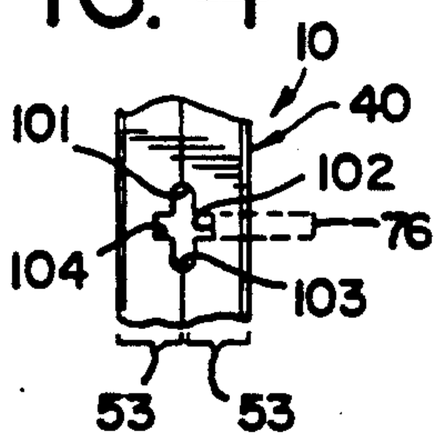


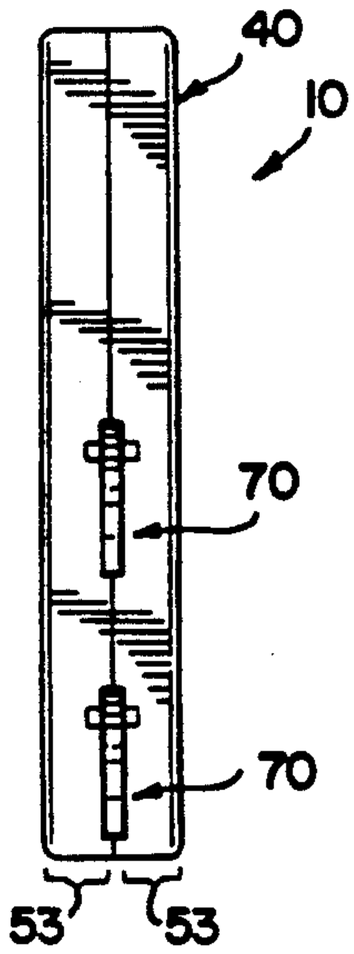
FIG. 2

FIG. 3

FIG. 4







ADJUSTABLE ADAPTER BRACKET

TECHNICAL FIELD

This invention relates to support apparatus such as shelving, display stands, store fixtures, and the like. More particularly, the invention relates to a bracket for mounting shelves, racks, display units and similar components to a conventional support member, such as a standard, post, upright, or column in a shelving support frame, display stand, or similar support apparatus. The bracket is particularly well suited for mounting point of purchase display units or point of sale display units to an upright.

BACKGROUND OF THE INVENTION AND TECHNICAL PROBLEMS POSED BY THE PRIOR ART

Retail stores typically display or store products on various kinds of support systems, such as point of purchase display units, point of sale display units, display stands, shelving systems, or similar fixtures. There are a variety of such systems suitable for supporting particular types of shelving or point of purchase display components, and the designs of these components may include constructions of wire, heavier steel members, thermoplastic materials, wood, particle board, cardboard, etc.

Many such fixtures and other support apparatus incorporate a plurality of vertically spaced-apart slots in posts, standards, uprights, or columns of the apparatus. Different manufacturers employ slightly different slot designs, configurations, or sizes. Thus, a shelf, rack, or other display component that is intended for being mounted to the support apparatus of one manufacturer may not be readily mounted in another manufacturer's support apparatus.

There is a need among users of such support apparatus, especially retail store users, for a means that will allow shelves and display components of one manufacturer to be used with the support apparatus of another manufacturer. This need may be most acute in retail establishments that have accumulated a number of different display or shelving systems provided by a variety of manufacturers. This need is also especially acute with respect to retail establishments that may have long been using a particular shelving system or display system which is now no longer produced.

Thus, it would be desirable to provide a mechanism for accommodating the mounting of components of one design to a support apparatus of another design.

Further, it would be beneficial if such a mechanism could be adjusted to accommodate various mounting orientations.

Also, it would be advantageous if such a mechanism could be relatively easily installed without the need for special tools.

Finally, such a mechanism should preferably incorporate a design that could be manufactured relatively inexpensively and without requiring critical or close tolerances.

SUMMARY OF THE INVENTION

An adjustable adapter bracket is provided with a novel construction that is suitable for use with an apertured support member. The bracket provides support at

a selected elevation on the support member for shelving, display components, and the like.

The adapter bracket includes a body that defines a load bearing region on which a portion of the shelf or display component rests.

A hook means is carried by the body and is moveable relative to the body to project beyond the body for entering into one of the apertures and engaging the support member.

An adjustment means is provided for cooperating with the body and hook means for adjusting the orientation and amount of projection of the hook means relative to the body.

In a preferred embodiment, the body defines a pair of spaced-apart guide ways for each receiving one of two hook means. The hook means includes two, spaced-apart, L-shaped hook elements. Each hook element has a mounting leg portion carried in the body and a foot portion extending generally transversely from the leg portion. The foot portion is received in the support member aperture and engages a portion of the support member adjacent the aperture.

The hook means also includes a shank extending from the leg portion. The shank is threaded and is received in a nut which can be turned on the shank to engage a portion of the body and draw the leg portion toward the body to thereby tighten the engagement between the leg portion and the support member. The hook element is movable relative to the body for initially accommodating the lengthwise positioning of the leg portion to extend a selected distance beyond the body whereby a desired spacing of the foot from the body is obtained so as to accommodate the dimensions of the particular support member.

The hook element is also rotationally adjustable about its lengthwise axis so as to permit the positioning of the leg portion at a selected orientation for accommodating the particular configuration of the support member and support member aperture.

Numerous other advantages and features of the present invention will become readily apparent from the following detailed description of the invention, from the claims, and from the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings forming part of the specification, in which like numerals are employed to designate like parts throughout the same,

FIG. **1** is a fragmentary, exploded, perspective view of the adjustable adapter bracket of the present invention shown in use with a display rack to be mounted to a support member of a pegboard display fixture;

FIG. **2** is an enlarged, fragmentary, cross-sectional view of the bracket of the present invention installed on the support member, and a portion of the bracket has been cut away to illustrate interior detail;

FIG. **3** is a view of the bracket taken generally along the plane **3—3** in FIG. **1**; and

FIG. **4** is a fragmentary view similar to FIG. **3**, but with the hook elements omitted to illustrate underlying detail and with an alternate position of a hook element illustrated in phantom by the use of dashed lines.

DESCRIPTION OF THE PREFERRED EMBODIMENT

While this invention is susceptible of embodiment in many different forms, this specification and the accompanying drawings disclose only one specific form as an

example of the invention. The invention is not intended to be limited to the embodiment so described, and the scope of the invention will be pointed out in the appended claims.

For ease of description, the bracket of this invention is described in one particular operating position, and terms such as upper, lower, horizontal, etc., are used with reference to this position. It will be understood, however, that the bracket of this invention may be manufactured, stored, transported, used, and sold in an orientation other than the position described.

The adapter bracket of this invention permits a variety of shelving and display components to be mounted to various kinds of apertured support systems, such as shelving system frames, fixture frames, and the like. The bracket is especially suitable for mounting point of purchase (sale) display units to conventional upright support members.

The bracket permits a shelf or display component of one manufacture to be mounted to a support system of another manufacture.

The bracket can be adjusted to accommodate various configurations of components and support system apparatus. The bracket also permits adjustment in a number of different orientations as may be required in some applications. The bracket can be easily installed and requires no tools.

The bracket is illustrated in FIG. **1**, and it is designated generally therein by the reference numeral **10**. The bracket **10** is illustrated as being employed with a fixture or support system **20** to support a flat wire display rack **30**.

The fixture **20** includes a support member **32** which may be a post, standard, upright, column, or similar structure resting upon, and extending upwardly from, the floor (not illustrated). Alternatively, the support member **32** may be merely a small insert member in the fixture **20** that is carried by other members (not illustrated) at a particular elevation and in a particular orientation for receiving and supporting displays or other components (e.g., intermediate connectors).

The support member **32** is typically provided with a plurality of slots **34**. In the illustrated support member **32**, the slots **34** are uniformly spaced apart in one vertically aligned row. The shelves or display components, or connectors associated therewith, are typically inserted in the apertures **34** to support the shelves or display components at the selected elevations.

The fixture **20** may also include other components, such as, for example, a pegboard **36** which defines a plurality of apertures **38**. The fixture **20** may be conventionally characterized by some manufacturers as a gondola or shelf unit.

Typically, the shape and arrangement of the slots **34**, as well as the configuration, size, and thickness of the support member **32**, are designed to receive and support a specific shelf or display component (or connector therefor). In many cases, a shelf or display component of one manufacturer cannot be properly received and supported a support member of another manufacturer. The novel bracket **10** of the present invention can overcome that problem in many installations.

The bracket **10** includes a body **40**. In the preferred embodiment illustrated, the body **40** comprises two mating body sections **42** and **44** that have mirror image symmetry and that are connected together (as by spot welding) along the plane of symmetry.

Each section **42** and **44** is of unitary construction and includes a generally planar first wall **51**, a generally planar second wall **52** which extends from the first wall **51** at an oblique angle, and a generally planar third wall **53** which extends from the second wall **52** in an orientation generally perpendicular to the first wall **51**. Each section has outwardly deformed portions which cooperate to define guide ways **60** for receiving hook means **70**. Each guide way **60** is an enclosed passage with open ends. Preferably, each guide way **60** is large enough to permit some vertical movement of the hook means **70**.

The hook means **70** is carried by the body **40** and is movable relative to the body **40** to project sufficiently beyond the body **40** for entering into the apertures **34** and for engaging the support member **32** adjacent the apertures.

In the preferred embodiment illustrated, the hook means **70** includes two, spaced-apart, L-shaped hook elements each having a leg portion **72** carried in the body **40** and a foot portion **76** extending generally transversely from the leg portion **72**. Preferably, the hook element leg portion **72** and the hook element foot portion **76** each have a generally rectangular cross section.

The hook means **70** further includes a shank **80** extending from the leg portion **72** of each hook element. There is a transition section **79** (FIG. **2**) at which the rectangular cross section of the leg portion **72** merges with the generally cylindrical configuration of the shank **80**. At least a portion of the shank **80** is threaded for receiving, and threadingly engaging, a nut **90**.

Each nut **90** is accommodated in a cavity **96** defined by the body **40**. Each cavity **96** interrupts a guide way **60** to divide the guide way **60** into two portions—one portion on each side of the cavity **96**. One end of each cavity **96** is defined by a bearing surface **98** on the body **40**, and each nut **90** has a facing engaging surface **97** for engaging the body bearing surface **98**.

Each hook element leg portion **72** extends through the third wall **53** of each of the bracket body sections **42** and **44**. To accommodate adjustment of the hook element orientation and projection relative to the bracket body **40**, the walls **53** of the body **40** define four intersecting slots **101**, **102**, **103**, and **104** (FIG. **4**). The slots form a generally cruciform opening.

The generally rectangular cross section leg portion **72** of the hook element can be aligned in a selected one of these slots to accommodate a desired orientation of the bracket **10** and/or foot portion **76** relative to various orientations of slots **34** in the receiving support member **32**. FIG. **3** illustrates the hook elements of the hook means **70** oriented so that each leg portion **72** is engaged in the upper, vertical slot **101** (visible in FIG. **4**).

If desired, the leg portion **72** of each hook means **70** may be oriented in the other slots, such as in the slot **102** as illustrated in phantom in FIG. **4**. To accommodate the change in orientation of the leg portion **72**, the nut **90** may have to be backed off sufficiently from the body bearing surface **98** to permit the leg portion **72** to be pulled outwardly of the body walls **53** sufficiently far enough to locate the narrower shank **80** at the center of the slots **101**, **102**, **103**, and **104** so that the shank **80** can be rotated to align the foot portion **76** in the desired orientation.

After the leg portion **72** is disposed in a selected orientation in one of the slots **101**, **102**, **103**, or **104**, the foot portion **76** can then be inserted in a receiving aperture **34** of the support member **32**. The nut **90** is rotated on the shank **80** to back the nut **90** away from the body

bearing surface **98** by an amount sufficient to permit a lengthwise positioning of the leg portion **72** in the guide way **60**. The leg portion **72** is then positioned so that it extends a selected distance beyond the body walls **53**. In this manner a desired spacing of the foot portion **76** from the wall **73** is obtained, and the thickness of the support member **32** is accommodated.

After the foot portion **76** is properly seated within the support member aperture **34**, the nut **90** is turned on the shank **80** to move the nut **90** toward the hook element and against the body bearing surface **98**. This draws the hook element foot portion **76** toward the bracket body **40** and effects a tightening of the engagement of the foot portion **76** with the support member **32**.

After the bracket **10** has been properly installed on the support member **32**, it is ready to be engaged with a shelf, display unit, or attachment component therefor. To this end, the bracket **10** is provided with a load bearing region in the form of an upwardly open notch or channel **130**. The notch **130** is adapted to receive an attachment member, such as a screw **50** projecting from a C-shaped clamp member **152** that is engaged with wires **154** of the display rack **30**. A second clamp member **158** would typically be slidably disposed on the screw **150** for being tightened against the other side of the display rack wires **154**. The screw **150** is positioned in the bracket notch **130** so as to locate the clamping member **158** adjacent the bracket section **42**, and a nut (not illustrated) may be threaded on the nut **150** to hold the screw **150**, clamps **158** and **152**, and display rack **30** on the bracket **10**.

The screw **150**, clamp member **152**, and clamp member **158** have an appropriate design and configuration for accommodating the design of the particular display rack **30**, and such components are typically furnished with the display rack **30**.

Other types of racks may incorporate different clamp attachment structures having a projecting portion or portions for being received in the bracket channel **130**. Racks, shelves, or other components to be supported may include other engagement members that can be supported on or retained in the notch **130**.

The bracket **10** may be employed to support shelving or display rack components in other ways. To this end, other portions of the bracket body **40** may be regarded as load bearing regions for supporting such components. For example, the top edge of the bracket **10**, on either side of the notch **130**, may be used as a load bearing region to support components. Alternatively, by reorienting the bracket **10** relative to the hook means **70**, the bracket **10** may be disposed 90 degrees from the orientation illustrated in FIGS. **1–4**. Then the surface of the body section **42** (or **44**, depending upon which side is "up") may function as a load bearing region for supporting components.

In some applications, it may be desireable to provide certain modifications to the bracket **10**. For example, additional notches or special apertures could be provided in the body **40** for receiving attachment members of shelves or display components.

It will be appreciated that novel structure of the bracket **10** accommodates variations in orientation and spacing of the support member apertures **34**. Also, it is possible to use the bracket **10** with very small apertures **34**. To facilitate assembly in such a situation, the hook element of each hook means **70** could be initially removed from the bracket body **40** and inserted separately into the apertures **34**. Then the bracket body **40** could be slid partially onto the hook means **70**. Next the nuts **90** could be installed and tightened as necessary.

In some applications, the adjustment capability of the bracket need not be as great as that which has been described. For example, in some situations, the slots **102** and **104** (FIG. **4**) could be omitted.

The adjustable adapter bracket **10** of the present invention is relatively easy to use, and requires no tools for installation. It accommodates the mounting of shelf components or display components of one design to a support apparatus of another design. It permits the bracket components to be arranged in a number of different relative orientations. The bracket can be relatively inexpensively manufactured and does not require unusually close or critical tolerances.

It will be readily observed from the foregoing detailed description of the invention and from the illustrations thereof that numerous variations and modifications may be effected without departing from the true spirit and scope of the novel concepts or principles of this invention.

What is claimed is:

1. An adjustable adapter bracket suitable for providing support at a selected elevation on a support member defining apertures, said adjustable adapter bracket comprising:

a body defining a load bearing region;

hook means carried by said body and movable relative to said body to project beyond said body for entering into one of said apertures and engaging said support member; and

adjustment means cooperating with said body and hook means for adjusting the orientation and amount of projection of said hook means relative to said body;

said body comprising two mating body sections that have mirror image symmetry and that are connected together along a plane of symmetry;

each said section being of unitary construction and including: (a) a generally planar first wall, (b) a generally planar second wall extending from said first wall at an oblique angle, and (c) a generally planar third wall extending from said second wall in an orientation generally perpendicular to said first wall;

each said third wall defining a flat engagement surface for engaging said support member adjacent said apertures; and

said hook means including a hook element projecting from said third wall engagement surface of each said body section.

2. An adjustable adapter bracket suitable for providing support at a selected elevation on a support member defining apertures, said adjustable adapter bracket comprising:

a body defining a load bearing region;

hook means carried by said body and movable relative to said body to project beyond said body for entering into one of said apertures and engaging said support member; and

adjustment means cooperating with said body and hook means for adjusting the orientation and amount of projection of said hook means relative to said body;

said body having a wall defining an engagement surface for engaging said support member adjacent said apertures;

said wall defining four intersecting slots forming a generally cruciform opening through said wall; and

said hook means including a hook element comprising a leg portion and a foot portion extending from said leg portion to define a generally L-shaped configuration, said leg portion having a generally rectangular transverse cross section for being received in a selected one of said four slots to orient said hook element in a selected one of four orientations, said foot portion having a generally rectangular transverse cross section for being received in one of said support member apertures and engaging said support member adjacent said aperture, said hook element being movable relative to said wall for accommodating the lengthwise positioning of said leg portion to extend a selected distance beyond a said wall whereby a desired spacing of said foot portion from said wall is obtained.

3. The bracket in accordance with claim 2 in which said load bearing region includes a notch defined by said body for receiving a cantilevered mounting member.

4. The bracket in accordance with claim 2 in which said hook means further includes a shank extending from said leg portion;

said adjustment means includes threads on said shank and a nut threadingly engaged with said shank threads;

said body defines a bearing surface; and

said nut defines an engaging surface for bearing against said body bearing surface as said nut is threaded on said shank toward said hook element to thereby draw said hook element foot portion toward said body and tighten the engagement of said foot portion with said support member.

* * * * *